DOCUMENT RESUME

ED 252 703 CE 040 499

AUTHOR Junge, Denis A.; And Others
TITLE Perception of Business and Industry: Basic Skills Necessary for Successful Employment Compared to Competencies of Entry Level Employees.
INSTITUTION Southern Illinois Univ., Carbondale.
SPONS AGENCY Illinois State Board of Education, Springfield. Dept. of Adult, Vocational and Technical Education.
PUB DATE Jun 83
CONTRACT R31-13-D-0368-460
NOTE 35p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Basic Skills; Business Communication; Communication (Thought Transfer); *Educational Improvement; *Educational Needs; Educational Trends; *Education Work Relationship; *Employer Attitudes; Employment Potential; Employment Problems; *Entry Workers; Futures (of Society); Job Skills; Program Improvement; School Business Relationship; Secondary Education; Skill Development; Statewide Planning
IDENTIFIERS Illinois

ABSTRACT

This study was conducted to assess business and industry's perceptions of the basic skills needed for entry-level successful employment. It also assessed business and industry's perceptions of the competencies that entry-level employees now have. Information was gathered via a basic skills questionnaire that was mailed to the personnel directors of 116 of the largest companies in Illinois (with a return rate of 44 percent--51 responses). The results of the study demonstrate a significant difference in business executives' perception of the level of basic skills important for success and the competence of secondary school graduates. This finding permeates the skill areas of writing, speaking/listening, reasoning, reading, mathematics, and science. The employers ranked especially high the skills of communication and reasoning; however, they believe that the schools are providing an inferior product in those skill areas. For example, respondents identified "writing standard English sentences" as the most deficient competency. In response to the deficiencies found in entry-level employees, many of the corporations have been forced to create their own business English or communication courses. The study concluded that changes need to be made in the educational system in order to prepare students for the technical world of work that is emerging. Some of these changes involve making school work more active and oriented toward problem solving and information processing, rather than toward the traditional teaching methods of talking to students and "filling" them with knowledge. (KC)

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PERCEPTION OF BUSINESS AND INDUSTRY: BASIC SKILLS NECESSARY FOR SUCCESSFUL EMPLOYMENT COMPARED TO COMPETENCIES OF ENTRY LEVEL EMPLOYEES

Submitted by:
Denis A. Junge
M. Harry Daniels
Joseph S. Karmos

ILLINOIS
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Department of Adult, Vocational and Technical Education
Research and Development Section

Product Abstract

1. Title of material: Perceptions of Business and Industry: Basic Skills Necessary for Successful Employment Compared to Competencies of Entry Level Employees
2. Date material was completed: June, 1983
3. Please check one: New material _x_ Revised material ____ Field-tested material ____
4. Originating agency: Southern Illinois University
   Address: Department Guid.& Ed. Psych., Carbondale, Il. Zip Code: 62901
5. Name(s) of developer(s): Denis Junge, M. Harry Daniels, Joseph Karmos
   Address: Same as Above Zip Code: ____
6. Developed pursuant to Contract Number: R31-13-D-0368-460

7. Subject Matter (Check only one according to Department of Education Code):

Code

____ 01 Agricultural Education	____ 10 Industrial Arts Education
____ 03 Business and Office Education	____ 16 Technical Education
____ 04 Distributive Education	____ 17 Trade and Industrial Education
____ 07 Health Occupations Education	____ 22 Cooperative Education
____ 09 Home Economics Education	____ Career Education
	_x_ Other (Specify) New Basics

8. Education Level:

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_x_ Post-Secondary	_x_ Adult	____ Teacher (Pre-service)	
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____ Limited-English Proficiency		_x_ Other (Specify) Adult

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16. This product utilized the Basic Skills Questionnaire to assess business and industry's perceptions of the basic skills needed for entry level successful employment. It also assesed business and industry's perceptions of the compentencies that entry level employees have. An analysis of the results is given in this report as well as conclusions and implications for educators and employers.

We are living in a period of socio-technological revolution (Toffler, 1980). Futurists agree that society and technology are experiencing accelerating rates of change, and in order to survive, it is imperative that individuals develop a capacity to adapt and modify their lives accordingly (Daniels, Karmos, and Junge, 1983). The most salient and pervasive trend within this change is the shift from an industrial society to an information society (Naisbitt, 1982). This transition will rapidly accelerate with continual advances in communications and computer technology. Robotics and computers will increasingly perform the routine and dangerous tasks, while workers will be expected to be more functional in the intellectual and problem solving skills. "The unthinking jobs will all be done by machines," as stated by James O'Toole of the University of Southern California's business school. "Those who will succeed in the work force will be those who have learned to learn." Educators will be held accountable to adequately prepare youth with the necessary skills to not merely cope with the transition but to become proactive learners and managers of the transition.

Although there is a realistic need for skills that will provide for career flexibility, there is a growing concern that our educational system is not sufficiently preparing youth for the future in work. The report by the National Commission on Excellence in Education (NCEE) bluntly described our country as "a nation at risk." It further stated that "the educational foundations of our society are being eroded by a rising tide of mediocrity that threatens our very future as a nation and as a people." John Naisbitt (1982) in Megatrends, declares that "the generation graduating from high school today is the first generation in American history to graduate less skilled than its parents."

Many high school graduates in our country do not have a foundation in basic academic capabilities. The NCEE documents support for alarm, "many 17-year-olds do not possess the 'higher-order' intellectual skills we should expect of them. Nearly 40 percent cannot draw inference from written material, only one-fifth can write a persuasive essay, and only one-third can solve a mathematics problem requiring several steps." Additional alarming data has been provided from the Chicago public schools, the second-largest public school system in the nation. Superintendent Ruth B. Love (1981) reported that the average reading level for eighth grade students was at seven years and three months. This average was considerably lower than the national norm. The problem was further compounded by an average of 54,000 students absent each day and 15,000 students dropping out each year. The frustration of teachers was illustrated by Gladys Patrick, a teacher for 26 years, in her statement, "I'm mad at society for giving these kids a diploma they can't read." Without a foundation in reading skills, computer illiteracy is an obvious conclusion.

Basic skills deficiencies among secondary school graduates entering the work force was reported by the New York Center for Public Resources (1982) in Basic Skills in the United States Work Force. In this study conducted by the Center for Public Resources (CPR), a survey was distributed to vice presidents of personnel or human resources from corporations across the nation. The survey was sent to 2,135 corporations representing different types of industry with manufacturing comprising the largest segment.

The survey requested information regarding the background of the company, perceptions of the nature and level of basic skills requirements for working, and perceptions of the deficiencies of the work force in these skill areas.

The recipients were given definitions related to basic skill competencies in the following areas: reading, writing, speaking and listening, mathematics, science, and reasoning. They were asked to rate the level of competency of secondary school graduates and non-graduates for the respective skill categories in a relatively open-ended response format. Responses were received from over 400 companies, however, only 184 gave detailed information regarding skill deficiencies. Over 200 companies recognized a serious problem but did not provide the level of detail requested. The length of the survey and the write-in response format may have been a factor in the depressed response rate.

The conclusion of the CPR report indicated that business and industry perceived high school graduates as being inadequately prepared in each of the assessed areas. These deficiencies were pervasive across various job descriptions and types of companies. Perhaps more noteworthy, was the conclusion that basic skills inadequacy not only minimizes being hired but may also impact job advancement and subsequent employee morale and turnover.

The implication of inadequate preparation in basic skills for business and industry is measured in decreased productivity and in dollars spent for remedial training programs. As stated by Clifton Bardsley, Personnel Manager for the McDonald-Douglas Corporation, "Without a solid education program, the problem of productivity cannot be solved." Employees with academic deficiencies cost United States businesses millions of dollars each year due to errors in inventory control and communication breakdown. Industry's response to employees' lack of preparation has been to provide remedial training programs. Included in a report entitled American Education: An Economic Issue, 35 percent of the companies surveyed provide remedial high

school training for their employees (Hemmings, 1982). AT&T reported spending six million dollars a year to train 14,000 employees in basic reading and mathematics (CPR, 1982). The Sperry Corporation has developed a program devoted exclusively to listening skills (Mundale, 1980). The implication for education is clear: Education must improve its ability to provide the basics of education or risk being replaced by businesses performing their own educating.

There is little doubt that education will be expected to play a major role in enhancing future students' career versatility. Business will expect entry level personnel to possess the skills that will enable them to contribute to corporate goals while attaining personal enrichment. As the actual employers of future workers, American business understands the skills important for success, and can contribute valuable information related to the capabilities necessary to adapt and function in the workplace. However, it has been difficult translating these perceptions into specific assessments of the nature and level of those skills necessary for job maintenance and advancement (CPR 1982). There have been few attempts to understand the perspective of business and industry, and companies have not adequately come forth with their needs.

The objective of the present study is to facilitate communication and collaboration between the business community and the educational system by assessing, clarifying, and articulating those skills that will enhance individual adaptability as well as industrial growth. This study, refined after the CPR report, was designed to survey the perceptions of business and industry relative to the importance of specific basic skills for successful employment, while comparing these views to their perceptions of competence in the respective skills of entry-level employees with a secondary education.

Method

Instrument

The Basic Skills Questionnaire (BSQ) was developed by the authors utilizing the CPR (1982) survey as a model. A copy of the complete questionnaire is presented in Appendix A. The questionnaire consisted of thirty items divided into the following basic skill categories: mathematical, writing, reading, speaking and listening, reasoning, and scientific. Each item represented a specific competency subsumed within a skill category. For example, sample competencies within the mathematical category were: "Perform the computations of addition, subtraction, multiplication, and division using whole numbers, fractions, and decimals;" and "Make and use measurements in standard units." The competencies were extracted from definitions formulated by the CPR (1982) to operationalize basic skills. Additional blank spaces were provided in the questionnaire to allow the listing of other important skills not specifically stated.

The BSQ was designed to survey two types of information directed at entry-level employees with a high school diploma or additional vocational training. Respondents were instructed to indicate on a five-point Likert-type scale the relative importance of the various basic skills for individuals to successfully perform the responsibilities of their job. Respondents were also requested to report the degree of competence possessed by entry-level personnel on each of the skills. For each item there were five degrees, graduated from low through moderate to high, representing ascending levels of importance and levels of competence. Respondents were asked to circle the perceived degree or level. This format differs from the CPR survey which employed written responses. The BSQ was an improvement on the efficiency of responding and the subsequent quantitive analysis of perceptions.

Procedure

A letter of transmittal was constructed to convey information to the recipient regarding the project. The letter is provided in Appendix B. The letter described the background of the project, explained the purpose of the BSQ, estimated the amount of response time, and emphasized the importance of the response. Special effort was given to recognize the need for collaboration between business and education and the value of a respondent's feedback. The letter was submitted in a package which also included the BSQ and a self-addressed return envelope.

The BSQ package was mailed to the Personnel Director of 116 of the largest companies with a corporate office in Illinois according to Fortune 500 and Forbes 798. These corporations were selected to insure a sample size of companies with a large number of employees and a broad range of job descriptions. The types of companies represented interests in finance, manufacturing/mining, service, utilities, and insurance. A section of the questionnaire was provided for the designation of the respondent's type of company.

Fifty-one responses were returned, a response rate of 44%. This compares to a response rate of only 9% of companies which gave detailed information to the CPR (1982) survey. Although response rates may vary from study to study dependent on the population sample, a review of the initial response rate for experimental studies yielded an average rate of 48.1% (Borg and Gall, 1983). The BSQ rate was close to this average. Because of the competetive nature of business, many companies are reluctant to release "in-house" information. This may especially be a factor when the information requested was related to the basic skill competencies of their own employees.

Results

The primary objectives of this project were to survey the perceptions of business and industry regarding the following issues:

1) Specific basic skills considered important for successful employment.
2) Competence in basic skills of entry-level personnel with secondary education.
3) Comparison of basic skills considered important for successful employment and the competence in basic skills of entry-level personnel with secondary education.

Information was collected by an analysis of responses to the BSQ. The data was divided into two sets of variables. One set of variables represented the degree of importance for success relative to the following skill areas: mathematics, writing, reading, speaking/listening, reasoning, and science. The second set, from the same sample of respondents, represented the perceived competence of entry-level employees in the respective basic skill areas.

A mean degree of importance and competence was calculated for each skill category. The categorized skill means were calculated as the sum of the corresponding subordinate item responses divided by the number of items for a particular category. The mean level of response for each skill with all respondents is illustrated in Table 1. The skills are listed in ascending order according to mean degree of importance for success. Speaking/listening and writing skills were considered highly important for success. They were closely followed by reasoning and reading skills. Only moderately important for success were the mathematical and scientific skills. For comparison, the degree of competency means are also presented in Table 1.

Table 1

Skill means and standard deviations for importance, competence, and discrepancy between importance and competence.

Skill	Importance Mean	Std. Dev.	Competence Mean	Std. Dev.	Discrepancy Mean	Std. Dev.
Speaking & Listening	4.08	0.70	2.91	0.66	1.15	0.83
Writing	4.06	0.79	2.69	0.96	1.38	0.98
Reasoning	3.78	0.83	3.57	0.61	1.20	0.96
Reading	3.62	0.79	2.73	0.79	0.88	0.89
Mathematical	3.05	1.61	2.41	0.54	0.63	0.53
Scientific	2.59	1.06	2.07	0.73	0.52	0.73

The skill discrepancy means were computed as the average difference between the degree of importance and degree of competence. They are presented in Table 2 and ordered according to magnitude in difference. The largest discrepancy between importance for success and degree of competence was in writing skills, closely followed by reasoning, and speaking/listening skills. Differences are also reported for reading, mathematical, and scientific skills. A paired-comparisons t test was performed between the set of importance variables and the respective competence variables using the Statistical Analysis System computer package (SAS Institute, 1982). The analysis yielded a significant difference between the importance and competence means for all skill categories at the .0001 level. This indicates that there is a significant difference between the level of basic skills perceived important for success and the perceived competence of entry-level personnel in those skills. This difference was in the direction of perceived deficient capabilities for all basic skill categories.

An analysis of particular item reponses from the BSQ provided more descriptive information concerning specific capabilities important for success and the nature of deficiencies. A complete listing of the items with response means for importance, competence, and a difference between the two is provided in Table 3. Inspection of the results related to specific writing and speaking/listening competencies shows that most of these abilities were considered highly important. The most highly rated skill was following instructions or directions in the performance of a specific task. Answering and asking questions concisely and coherently, and speaking with others in a relaxed and self-confident manner was also rated highly from the area of speaking/listening skills. The most notable deficiencies were reported in the

Table 2

Paired-comparisons t test between skill importance and skill competence.

Skill	Discrepancy Mean	Standard Error of Mean	T*
Writing	1.38	0.13	9.87
Reasoning	1.20	0.13	8.81
Speaking & Listening	1.15	0.11	9.73
Reading	0.88	0.12	6.98
Mathematical	0.63	0.07	8.32
Scientific	0.52	0.10	4.83

* all significant at .0001

Table 3

Skill category and item means.

Category and Item	Importance $\bar{X}$	Competence $\bar{X}$	Difference Between Means
Mathematical Skills	3.05	2.41	.64
1. Perform the computations of addition, subtraction, multiplication, and division using whole numbers, fractions, and decimals.	4.29	3.14	1.15
2. Use effectively the mathematics of: ratios, percentages, averages, roots and powers.	3.04	2.23	.81
3. Use effectively the mathematics of algebra and geometry.	2.29	1.86	.43
4. Make and use measurements in standard (English) units.	3.43	2.94	.49
5. Make and use measurements in metric units.	2.31	1.80	.51
6. Use elementary concepts of probability and statistics.	2.21	1.71	.50
7. Solve word problems involving time, weight, distance, and volume.	2.78	2.12	.66
8. Use a calculator to perform basic arithmetic operations to solve problems.	4.06	3.31	.75
Writing Skills	4.06	2.69	1.37
1. Select, organize, and relate ideas and to outline and develop them in coherent paragraphs.	4.02	2.65	1.37
2. Write standard English sentences with correct punctuation, capitalization, plural forms, possessives, and spelling.	4.45	2.90	1.55
3. Write standard English sentences with correct verb forms, sentence structure, and word choice.	4.35	2.86	1.49

Category and Item	Importance $\bar{X}$	Competence $\bar{X}$	Difference Between Means
4. Improve one's own writing by correcting errors, restructuring, and rewriting.	4.10	2.65	1.45
5. Gather information from primary and secondary sources; to write a report using this research; to quote, paraphrase, and summarize accurately; and to cite sources properly.	3.39	2.34	1.05
Reading Skills	3.62	2.73	.89
1. Identify and comprehend the main and subordinate ideas in a written work.	3.90	2.84	1.06
2. Vary one's reading speed and method according to the type of material and one's purpose for reading.	3.45	2.56	.89
3. Use the features of printed materials, such as table of contents, preface, introduction, titles, index, glossary, appendix, and bibliography.	3.41	2.78	.63
4. Define unfamiliar words by decoding, using clues, or by using a dictionary.	3.70	2.74	.96
Speaking and Listening Skills	4.08	2.91	1.17
1. Engage critically and constructively in the exchange of ideas.	4.06	2.76	1.30
2. Answer and ask questions concisely and coherently.	4.27	3.06	1.21
3. Conceive and develop ideas about a topic for the purpose of speaking to a group; to choose and organize related ideas; to present them clearly in standard English.	3.16	2.24	.92
4. Follow instructions or directions in the performance of a specific task.	4.61	3.43	1.18

Category and Item	Importance $\bar{X}$	Competence $\bar{X}$	Difference Between Means
5. Speak with others in a relaxed and self-confident manner.	4.22	3.10	1.12
Reasoning Skills	3.78	2.58	1.20
1. Identify and formulate problems, as well as the ability to propose and evaluate ways to solve them.	4.00	2.66	1.34
2. Recognize and use inductive and deductive reasoning, and to recognize fallacies in reasoning.	3.65	2.44	1.21
3. Comprehend, develop and use concepts and generalizations.	3.57	2.48	1.09
4. Distinguish between fact and opinion.	3.90	2.68	1.22
5. Draw reasonable conclusions from sources of information and defend them rationally.	3.80	2.62	1.18
Scientific Skills	2.59	2.07	.52
1. Apply basic scientific/technical solutions to the appropriate problems.	3.14	2.35	.79
2. Understand the basic principles of mechanics and biology.	2.38	2.02	.36
3. Understand the basic principles of chemistry and physics.	2.26	1.85	.41

area of writing skills. Writing standard English sentences with correct punctuation, spelling, grammar, word usage, and structure were cited as the most deficient of all competencies. The improvement of one's own writing by correcting errors and rewriting showed the next highest degree of deficiency.

The results in the area of reasoning skills also demonstrated important requirements for successful employment and wide discrepancies between their requirements and competence. Most noteworthy was the ability to identify problems, and subsequently, propose and evaluate ways to solve them. Other skills included distinguishing between fact and opinion, and drawing reasonable conclusions from sources of information. An important concern in the area of mathematics was the ability to perform the computations of addition, subtraction, multiplication, and division using fractions and decimals, as well as with whole numbers. The ability to extract and comprehend the main and subordinate ideas in written work was also a considerable concern in the area of reading skills.

Additional valuable information was extracted from the corporate open-responses concerning other important skills for successful employment not stated in the BSQ. The following is a listing of those most frequently cited skills or characteristics of a successful employee:

1. Good attitude toward work. This is probably considered the most important affective characteristic of a future employee.

2. Willingness to adapt and learn. Demonstrating that one is willing and able to learn new material may compensate for lack of knowledge in a particular content area.

3. Getting along with others; the ability to effectively interact and co-operate with fellow workers.

4. A mannerly, neat, and appropriate appearance.

5. Promptness and regular attendance.

6. Familiarity with basic computer knowledge, and the ability to interact with a computer.

7. Good communication skills, both oral and written. Ability to listen is essential in effective communication.

Discussion and Conclusions

Business and industry in Illinois, the second largest state in number of Fortune 500 companies, is experiencing secondary school graduate employees as being deficient in basic academic skills. Employers want and need entry-level employees to be competent in these skill areas. They represent the necessary foundation of more highly complex intellectual skills required in an increasingly sophisticated and versatile work environment. Employment capability, flexibility, and satisfaction are dependent on a high degree of ability in these basics. Deficiencies in the basics is no longer a novel perspective; it is a trend pervasive across the nation. However, the findings from this study hopefully provide more descriptive information in relation to specific competencies critical for successful employment and adaptability.

The results of this study demonstrate a significant difference in business executives perception of the level of basic skills important for success and the competence of secondary school graduates. This finding permeates the skill areas of writing, speaking/listening, reasoning, reading, math, and science. These results are similar to those reported in the CPR (1982) survey. Several results are particularly noteworthy, specifically the importance of communication and reasoning skills to future employers. They are demanding high level competencies in speaking, listening, writing, and

problem solving skills. To their dismay, business perceives the schools providing an inferior product in these skill areas.

An information-intensive society requires writing skills more than ever before. In spite of this need, respondents identified "writing standard English sentences" as the most deficient competency. The ability to spell and punctuate properly, the use of appropriate grammar, and correct sentence structure are merely prerequisites to composite skills of word processing and synthesizing computer programs. This perception of deficient writing skills is congruent with other observations of employee failure in writing memos, letters, and business reports (Mundale, 1982). In response, companies will take it upon themselves to enhance succinct and coherent writing skills by offering their own programs. Honeywell conducts such courses as Business English, and Effective Memo and Report Writing (Mundale, 1982).

Speaking/listening was rated the most important of all skill categories, and "following verbal instructions or directions" was rated the highest of all competencies. This response paralleled CPR's (1982) report that business executives nearly always noted speaking and listening skills as an important requirement, and "this was true for all job categories in all industries." The Sperry Corporation refers to listening as the most used of the basic skills and has developed a campaign promoting good listening skills (Mundale, 1982). The campaign involves advertisement, seminars, and a training program. This emphasis on speaking/listening skills may be the most pertinent empirical result of the BSQ study relative to implications for education.

For many, the cry of "back to basics" throughout our nation is interpreted as intesifying more of the same traditional education. If quantity of time or product is an answer to our educational crisis, why

haven't students acquired listening skills after 12 years of listening to teachers talk? As suggested by Goodlad (1983), the educational system has not recognized the need for more training, involvement, and practice in the process of public speaking and active listening. Any curriculum designed to prepare students for future successful careers must incorporate participation in active listening skills. Active listening involves the cognitive management of acute attention, elaborate reflection, and empathic feedback. These capacities are imperative for the increasingly important activities of interacting effectively with others and solving problems.

The changing nature of work, especially for blue-collar technicians, will impact dramatically on the prominence of reasoning skills. Survey results demonstrated that business and industry recognize the significance of reasoning skills for future work. Future workers will have less rigidly defined job descriptions as automation, robotics, and computers perform the mundane tasks. The adaptable worker will utilize the other basic skills in consort with reasoning skills to solve problems rather than perform rote tasks. Identifying problems, generating alternative solutions, distinguishing between fact and opinion, and formulating reasonable conclusions will be instrumental in the increase of decision-making responsibilities.

Additional defecits are reported in reading, mathematics, and science skills. The ability to comprehend the main ideas of text showed the largest deficit of the reading competencies. The significance of reading in an information-era need not be elaborated. Similar to the CPR (1982) study, the greatest mathematical deficit was in computations utilizing whole numbers, fractions, and decimals. The skill category showing the smallest discrepancy between skill importance and competence is in the science area. This is

somewhat surprising in light of the emphasis on advanced technology. Possibly the respondents have not observed a relationship between esoteric science skills and applied job descriptions. The science skills may not yet be considered important across a wide range of job categories. Further inquiry is necessary to determine how prevalent these skills will be needed by individuals in the future.

As the United States proceeds through the transition from an industrial to an information society, a poignant message is being delivered to our educational system from a variety of sources. To insure, not only the well-being, but the very survival of future youth in the changing U.S. workplace, they need to be trained in the proactive management of their career flexibility. These complex transition skills are based on a foundation of basic academic competencies, however this foundation currently has been declared dangerously fragile. The immediate challenge to the schools is to reinforce this foundation with greater emphasis on teaching the basics and the transfer of these skills to occupational settings.

The message from business and industry to the educational community centers on the need for increased competence in communication and problem solving skills. Present educational practices are not adequately preparing youth in these areas. Teacher talk prevails as the most dominant classroom activity in our schools (Goodlad, 1983). Students ostensibly listen, respond when called upon, and strive for competency in multiple-choice exams. Unfortunately, this dydactic arrangement has not sufficiently prepared youth for the expectations of successful employment. The emphasis on accumulating knowledge as opposed to processing, interacting, and elaborating with information is a factor in students not transfering skills outside the

classroom. Goodlad (1983) states that students "rarely planned or initiated anything, read or wrote anything of some length, or created their own products; they scarcely ever speculated on meanings, discussed alternative interpretations, or engaged in projects calling for collaborative effort." Students are more than receptacles into which teachers pour knowledge. Teaching is more than telling, and learning is more than acquiring and demonstrating mastery of facts. In order to insure transferability of basic skills into the workplace, the teacher must engage the student as an active participant in the learning process. Prospective employees will expect them to be active participants in the workplace.

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Appendix A

BASIC SKILLS QUESTIONNAIRE

The purpose of this questionnaire is to determine the basic skills which are necessary for individuals to successfully perform their responsibilities in your company, and the degree to which entry level employees with high school diplomas or vocational training can perform those skills. In the spaces provided, please specify your business, write your name, and check the major focus of your company.

Name of Company: _____

Person Completing Form: _____

Focus of Company: _____ Finance/Credit
_____ Manufacturing/Mining
_____ Service
_____ Utilities
_____ Insurance

Directions: In the left column, please indicate with a circle the degree to which each of the skills listed below is important for the success of entry level employees with a high school diploma or vocational training.
In the right column, please indicate with a circle the degree of competence already possessed by entry level employees with a high school diploma or vocational training for each of the skills listed below.

E X A M P L E:

IMPORTANCE FOR SUCCESS					SKILL	COMPETENCE AT ENTRY				
Low		Moderate		High		Low		Moderate		High
1	2	3	(4)	5	Add and subtract common fractions	1	(2)	3	4	5

Importance For Success					MATHEMATICAL SKILLS	Competence at Entry				
Low		Moderate		High		Low		Moderate		High
1	2	3	4	5	1. Perform the computations of addition, subtraction, multiplication, and division using whole numbers, fractions, and decimals.	1	2	3	4	5
1	2	3	4	5	2. Use effectively the mathematics of: ratios, percentages, averages, roots and powers.	1	2	3	4	5
1	2	3	4	5	3. Use effectively the mathematics of algebra and geometry.	1	2	3	4	5
1	2	3	4	5	4. Make and use measurements in standard (English) units.	1	2	3	4	5
1	2	3	4	5	5. Make and use measurements in metric units.	1	2	3	4	5
1	2	3	4	5	6. Use elementary concepts of probability and statistics.	1	2	3	4	5
1	2	3	4	5	7. Solve word problems involving time, weight, distance, and volume.	1	2	3	4	5
1	2	3	4	5	8. Use a calculator to perform basic arithmetic operations to solve problems.	1	2	3	4	5
					WRITING SKILLS					
1	2	3	4	5	1. Select, organize, and relate ideas and to outline and develope them in coherent paragraphs.	1	2	3	4	5
1	2	3	4	5	2. Write standard English sentences with correct punctuation, capitalization, plural forms, possessives, and spelling.	1	2	3	4	5
1	2	3	4	5	3. Write standard English sentences with correct verb forms, sentence structure, and word choice.	1	2	3	4	5
1	2	3	4	5	4. Improve one's own writing by correcting errors, restructuring, and rewriting.	1	2	3	4	5
1	2	3	4	5	5. Gather information from primary and secondary sources; to write a report using this research; to quote, paraphrase, and summarize accurately; and to cite sources properly.	1	2	3	4	5

Importance For Success (Low 1 2 3 4 5 Moderate 1 2 3 4 5 High)		Competence at Entry (Low 1 2 3 4 5 Moderate 1 2 3 4 5 High)
	READING SKILLS	
1 2 3 4 5	1. Identify and comprehend the main and subordinate ideas in a written work.	1 2 3 4 5
1 2 3 4 5	2. Vary one's reading speed and method according to the type of material and one's purpose for reading.	1 2 3 4 5
1 2 3 4 5	3. Use the features of printed materials, such as table of contents, preface, introduction, titles, index, glossary, appendix, and bibliography.	1 2 3 4 5
1 2 3 4 5	4. Define unfamiliar words by decoding, using clues, or by using a dictionary.	1 2 3 4 5
	SPEAKING AND LISTENING SKILLS	
1 2 3 4 5	1. Engage critically and constructively in the exchange of ideas.	1 2 3 4 5
1 2 3 4 5	2. Answer and ask questions concisely and coherently.	1 2 3 4 5
1 2 3 4 5	3. Conceive and develope ideas about a topic for the purpose of speaking to a group; to choose and organize related ideas; to present them clearly in standard English.	1 2 3 4 5
1 2 3 4 5	4. Follow instructions or directions in the performance of a specific task.	1 2 3 4 5
1 2 3 4 5	5. Speak with others in a relaxed and self-confident manner.	1 2 3 4 5
	REASONING SKILLS	
1 2 3 4 5	1. Identify and formulate problems, as well as the ability to propose and evaluate ways to solve them.	1 2 3 4 5
1 2 3 4 5	2. Recognize and use inductive and deductive reasoning, and to recognize fallacies in reasoning.	1 2 3 4 5
1 2 3 4 5	3. Comprehend, develope, and use concepts and generalizations.	1 2 3 4 5

Importance For Success						Competence at Entry					
Low		Moderate		High		Low		Moderate		High	
1	2	3	4	5	4. Distinguish between fact and opinion.	1	2	3	4	5	
1	2	3	4	5	5. Draw reasonable conclusions from sources of information and defend them rationally.	1	2	3	4	5	
					SCIENTIFIC SKILLS						
1	2	3	4	5	1. Apply basic scientific/technical solutions to the appropriate problems.	1	2	3	4	5	
1	2	3	4	5	2. Understand the basic principles of mechanics and biology.	1	2	3	4	5	
1	2	3	4	5	3. Understand the basic principles of chemistry and physics.	1	2	3	4	5	
					In the spaces provided below, you may, if appropriate, add any other skills which are necessary for the success of employees in your company.						
1	2	3	4	5	1. _____	1	2	3	4	5	
1	2	3	4	5	2. _____	1	2	3	4	5	
1	2	3	4	5	3. _____	1	2	3	4	5	
1	2	3	4	5	4. _____	1	2	3	4	5	

Appendix B

Southern Illinois
University at Carbondale
Carbondale, Illinois 62901

Department of Guidance and Educational Psychology

June 30, 1983

Personnel Director
Sun Electric Corp.
One Sun Pky.
Crystal Lake, IL 60014

Dear Personnel Director:

We have been awarded a contract from the Illinois Department of Adult Vocational and Technical Education to investigate and identify the basic skills necessary for individuals to successfully gain employment, perform required job responsibilities, and adapt to new job tasks. As the actual employers of future workers, American business probably best understands the nature and level of basic skills required to maintain and adapt to new jobs. Your company was selected as a source of information among other companies that are considered the largest firms with headquarters in Illinois.

A questionnaire is enclosed to survey two types of information directed at entry-level employees with a high school diploma or vocational training. At this level, we are interested in your perception of the basic skills necessary for successful employment in your company. We are also interested in your views regarding the degree of competency, relative to these skills, that entry-level personnel with a high school diploma or vocational training bring to your company.

It should take less than 15 minutes to complete this questionnaire. Directions for completing the questionnaire are included. If you are unable to complete this form, please forward it to a person who can provide the information requested. When you have finished, please use the enclosed addressed envelope and return the completed form to us.

Our research recognizes and emphasizes the need for more collaboration between business and secondary education to insure that students acquire the skills that you perceive as important to the work place. Your feedback will provide valuable information that will impact future policy proposals in vocational education. In turn, we hope that the results of our project will help business and industry. Upon request, we will send a summary of our findings to interested participants. If you are interested, please indicate so by including an addressed envelope from your company with the completed questionnaire.

If you have questions about our research, please fell free to contact us. Thank you for your assistance in this important and timely project.

Sincerely,

Harry Daniels Joe Karmos

Harry Daniels, Ph.D. Joe Karmos, Ph.D.
Project Co-directors